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FOREST AREA AND TIMBER RESOURCE STATISTICS FOR THE CENTRAL UTAH WORKING CIRCLE, 1976

DOROTHY G. SHUPE

MICHAEL K. BARRETT

USDA Forest Service Resource Bulletin INT-14
INTERMOUNTAIN FOREST AND RANGE EXPERIMENT STATION
FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE

USDA Forest Service
Resource Bulletin INT-14
September 1979

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RESEARCH SUMMARY

Presents land area, commercial timberland area, timber inventory, and growth and mortality data based on Resources Evaluation standards.

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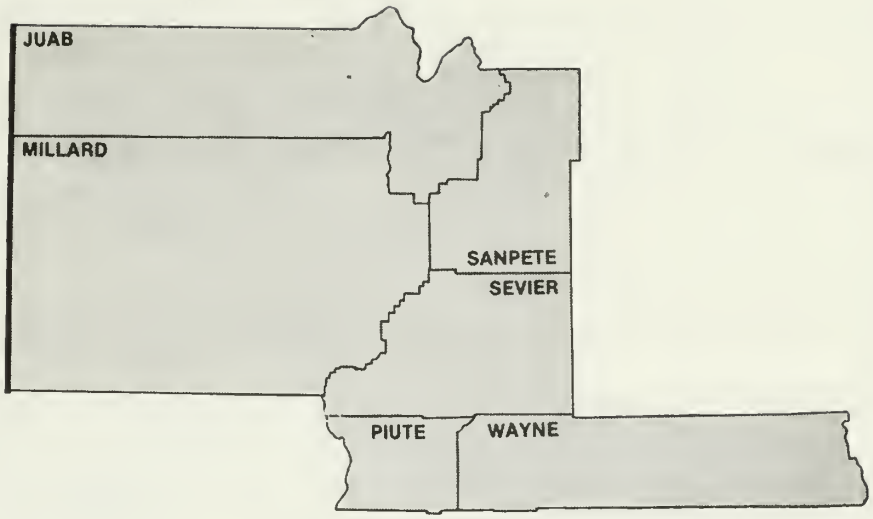
Central Utah



INTRODUCTION

A comprehensive timber resource study was conducted on public and private lands, except National Forest land, in Central Utah in 1976 by the Utah Department of Natural Resources, Division of State Forestry and Fire Control, in cooperation with the Division of State and Private Forestry, Forest Service, Region 4, and the Intermountain Forest and Range Experiment Station.

Central Utah is comprised of Juab, Millard, Piute, Sanpete, Sevier, and Wayne Counties (fig. 1). Total land area is 10.9 million acres (4.4 million hectares). The largest share of this land is Federally owned. The Bureau of Land Management manages 6.0 million acres (2.4 million hectares) and the Forest Service, 1.9 million acres (0.8 million hectares). Ownership of the remaining area is divided among the State, 0.9 million acres (0.4 million hectares); other public, 0.3 million acres (0.1 million hectares); and private, 1.8 million acres (0.7 million hectares). The data presented here are for public and private lands, BUT EXCLUDE NATIONAL FOREST OWNERSHIP.

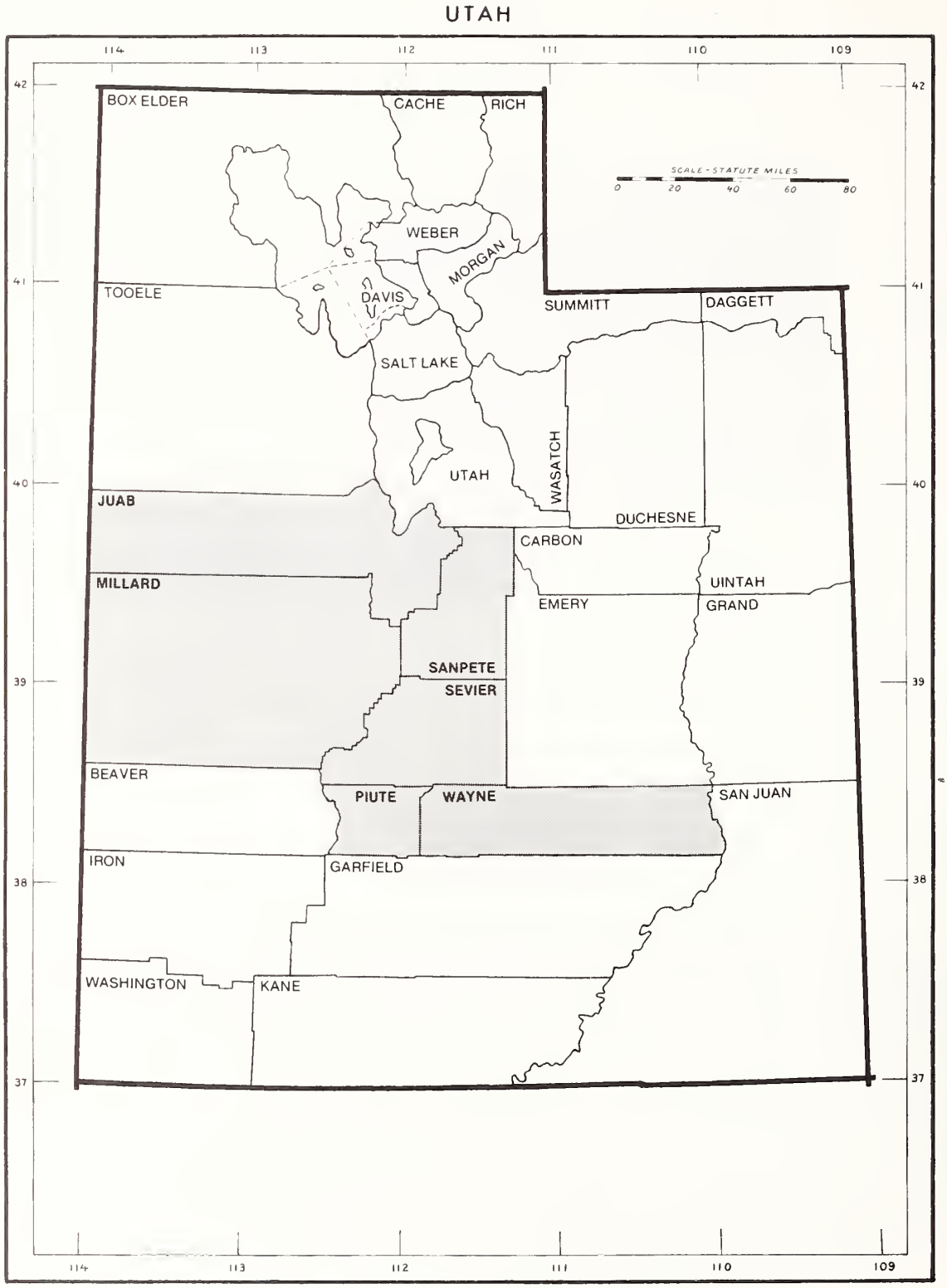


Figure 1.--Central Utah Counties, Juab, Millard, Sanpete, Sevier, Piute, and Wayne.

Highlights show the area of commercial timberland in comparison to total forest land area, and the distribution of this area by forest type, stand-size class, and site class. Discussions of the data reliability and terminology are included. These two items should be reviewed carefully when using this information.

HIGHLIGHTS

Area

- The forest land area includes 1.3 million acres (0.5 million hectares), 14 percent of the total public and private land area.
- Of the forest land, 61 thousand acres (25 thousand hectares), or about 5 percent, are classified as commercial timberland.
- Private ownership accounts for 38 thousand acres (16 thousand hectares), or 63 percent of the commercial timberland.
- Aspen is the predominant forest type on 40 percent of the commercial timberland. Douglas-fir ranks second with 24 percent followed by spruce-subalpine fir with 22 percent. The remaining 14 percent is white fir forest type.
- Sixty nine percent of the aspen forest type is privately owned.
- Seventy percent of the commercial timberland is in sawtimber stands; poletimber stands occupy 18 percent; the remaining 12 percent is in sapling and seedling stands.
- Over 64 percent of the sawtimber stands is in private ownership.
- Nearly 53 percent of the commercial timberland is in the 20 to 49 cubic-foot productivity class.

Inventory

- Growing stock volume is 102 million cubic feet (3 million cubic meters) with only 51 percent in softwood sawtimber trees.
- Rough, rotten, and salvable dead trees account for 11 million cubic feet (0.3 million cubic meters), or 10 percent of the total sound wood volume.
- About 87 percent of the 332 million board feet[1] of sawtimber volume is in sawtimber trees less than 23.0 inches d.b.h.
- Aspen makes up 43 percent of the growing stock volume.
- Subalpine fir (16 percent), white fir (15 percent), and Engelmann spruce (13 percent) make up 44 percent of the growing stock volume and 58 percent of the sawtimber volume. Species sharing the remaining percentage are Douglas-fir, limber pine, and pinyon/juniper.[2]
- Private owners control 66 percent of the growing stock volume and 64 percent of the sawtimber volume.

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[1] International 1/4-inch rule.

[2] Although pinyon-juniper usually occurs on unproductive forest land, when it occurs in mixtures with other species on productive sites, it is reported in the commercial timberland statistics.

Growth and Mortality

- Net annual growth of growing stock totals 2,481 thousand cubic feet (70 thousand cubic meters) with 64 percent occurring in aspen species. Growth and mortality were not measured for pinyon and juniper trees.
- About 70 percent of the total net growth is on private lands.
- The annual mortality of 512 thousand cubic feet (15 thousand cubic meters) offsets 17 percent of the gross annual growth.
- Sixty-four percent of the mortality occurs in the subalpine fir species.

DATA RELIABILITY

The sampling errors presented in tables 1 and 2 are in terms of one standard error--the 67 percent confidence level. Individual cells within tables should be used with caution. Some are based on small sample sizes, thus resulting in high sampling errors.

Table 1.--*Forest land and associated sampling error percentages for Central Utah, 1976*

Item	Softwood types		Hardwood types		All types	
	Acres	Percent	Acres	Percent	Acres	Percent
Commercial timberland	36,554	14.9	24,140	27.7	60,694	12.5
Other forest land:						
Unproductive reserved	72,409	3.3	1,630	22.2	74,039	3.3
Unproductive nonreserved	949,095	1.0	208,225	4.1	1,157,320	.9

Table 2.--*Net volume, net annual growth and annual mortality on commercial timberland and associated sampling error percentages for Central Utah, 1976*

Item	Softwoods		Hardwoods		All species	
	Volume	Percent	Volume	Percent	Volume	Percent
Volume:						
Growing stock (M cubic feet)	58,509	16.9	43,285	22.4	101,794	14.5
Sawtimber (M board feet[1])	248,217	18.0	83,616	31.3	331,833	17.1
Net Growth:						
Growing stock (cubic feet)	895,052	32.1	1,586,395	26.9	2,481,447	21.1
Sawtimber (board feet[1])	5,789,904	30.9	4,006,903	37.5	9,796,807	25.1
Mortality:						
Growing stock (cubic feet)	460,386	55.1	52,021	72.9	512,407	49.9
Sawtimber (board feet[1])	1,749,890	65.0	107,391	[2]100.0	1,857,281	61.5

[1]International 1/4-inch rule.

[2]Computed sampling error exceeds 100 percent.

TERMINOLOGY AND DATA TABLES

The following terminology section contains definitions, taken directly from the Forest Service Forest Survey Handbook, that are relevant to the timber resource data presented in this resource bulletin. Forest area and timber resource data for Central Utah are displayed in tables 3 through 23.

TERMINOLOGY

Land

Bureau of the Census.--The area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals less than 1/8 of a statute mile in width; and lakes, reservoirs, and ponds less than 40 acres in area.

Water

Census water.--As defined by the Bureau of the Census, streams, sloughs, estuaries, and canals more than 1/8 of a statute mile in width; and lakes, reservoirs, and ponds more than 40 acres in area.

Noncensus water.--The same as defined by the Bureau of the Census, except minimum width of streams, etc., is 120 feet and minimum size of lakes, etc., is 1 acre.

Land Use Classes

Forest land.--Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use.

Commercial timberland.--Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization. (Note: Areas qualifying have the capability of producing in excess of 20 cubic feet per acre per year of industrial wood under management. Currently inaccessible and inoperable areas are included, except when the areas involved are small and unlikely to become suitable for production of industrial wood in the foreseeable future.)

Productive-reserved forest land.--Forest land sufficiently productive to qualify as commercial timberland, but withdrawn from timber utilization through statute, administrative designation, or exclusive use for Christmas tree production.

Other forest land.--(1) Forest land incapable of producing 20 cubic feet per acre of industrial wood under management, because of adverse site conditions; (2) unproductive-reserved forest land.

Nonforest land.--Land that has never supported forests and lands formerly forested where use for timber management is precluded by development for other uses.

Public Ownership Classes

National Forest land.--Federal lands that have been legally designated as National Forest or purchase units, and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Bureau of Land Management lands.--Federal land administered by the Bureau of Land Management.

Indian lands.--Tribal lands held in fee by the Federal Government, but administered for Indian tribal groups and Indian trust allotments.

Miscellaneous Federal lands.--Federal lands other than the following: (1) National Forest lands; (2) lands administered by the Bureau of Land Management; and (3) Indian lands.

State.--Lands owned by States, or lands leased to these governmental units for 50 years or more.

County and municipal lands.--Lands owned by counties and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Private Ownership Classes

Forest industry lands.--Lands owned by companies or individuals operating wood-using plants.

Farmer-owned lands.--Lands owned by farm operators. (Note: These exclude lands leased by farm operators from nonfarm owners, such as railroad companies and States.)

Miscellaneous private lands.--Privately owned lands other than forest and farmer-owned lands.

Forest Type and Tree Species

Forest types.--A classification of forest land based upon the species forming a plurality of live-tree stocking.

Forest trees.--Woody plants having a well-developed stem and usually more than 12 feet in height at maturity.

Commercial species.--Tree species presently or prospectively suitable for industrial wood products.

Softwoods.--Coniferous trees, usually evergreen, having needles or scalelike leaves.

Hardwoods.--Dicotyledonous trees, usually broad-leaved and deciduous.

Area Condition Classes

Stocking.--Stocking is an effort to express the extent to which growing space is effectively utilized by present or potential growing stock trees or commercial species. "Percent of stocking" is synonymous with "percentage of growing space occupied" and means the ratio of actual stocking to full stocking for comparable sites and stands. Basal area is used as a basis for measuring stocking.

"Stocking percentages" express current area occupancy in relation to specified standards for full stocking based on number, size, and spacing of trees considered necessary to fully utilize the forest land.

Full utilization of the site is assumed to occur over a range of basal area. As an interim guide 60 percent of the normal yield table values has been used to establish the lower limit of the range which represents full-site occupancy. This is called 100-percent stocking. The upper limit of full stocking has been set at 132 percent. Sites with less than 100-percent stocking represent understocking with less than full-site occupancy. Overstocking is characterized by sites with over 133-percent stocking.

Class 10.--Area fully stocked (100-132 percent) with desirable trees and not overstocked (133 percent or more).

Class 20.--Area fully stocked with desirable trees, but overstocked with all live trees.

Class 30.--Areas medium to fully stocked (60-99 percent) with desirable trees and with less than 30 percent of the area controlled by other trees and (or) inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees.

Class 40.--Areas medium to fully stocked with desirable trees and with 30 percent or more of the area controlled by other trees and (or) conditions that ordinarily prevent occupancy by desirable trees.

Class 50.--Areas poorly stocked (16.7-59 percent) with desirable trees, but fully stocked with growing stock trees.

Class 60.--Areas poorly stocked with desirable trees, but with medium to full stocking of growing stock trees.

Class 70.--Areas nonstocked (less than 16.7 percent) or poorly stocked with desirable trees, and poorly stocked with growing stock trees.

Class 80.--Low-risk old-growth stands.

Class 90.--High-risk old-growth stands.

Nonstocked.--Areas less than 16.7 percent stocked with growing stock trees.

Class of Timber

Growing stock trees.--Live trees of commercial species qualifying as desirable or acceptable trees. (Note: Excludes rough, rotten, and dead trees.)

Desirable trees.--Growing stock trees (a) having no serious defect in quality limiting present or prospective use for timber products; (b) of relatively high vigor; and (c) containing no pathogens that may result in death or serious deterioration before rotation age.

Acceptable trees.--Growing stock trees that meet specified standards of size and quality, but not qualifying as desirable trees.

Rough trees.--(1) Live trees of commercial species that do not contain at least one 12-foot saw log or two noncontiguous saw logs, each 8 feet long or longer, now or prospectively, and (or) do not meet Rocky Mountain Regional specifications for freedom from defect primarily because of roughness or poor form; (2) all live trees of noncommercial species.

Rotten trees.--Live trees of commercial species that do not contain at least one 12-foot saw log or two noncontiguous saw logs, each 8 feet long or longer, now or prospectively, and (or) do not meet Rocky Mountain Regional specifications for freedom from defect primarily because of rot; that is, when more than 50 percent of the cull volume (cubic-foot basis) in a tree is rotten.

Cull.--Portions of a tree that are unusable for industrial wood products because of rot, form, or other defect.

Salvable dead trees.--Standing or down dead trees that are considered merchantable by Rocky Mountain Regional standards.

Mortality trees.--Trees formerly growing stock dying from natural causes during a specified period, usually annually.

Saw log portion.--That part of the bole of sawtimber trees between the stump and the saw log top. A 1-foot stump is used.

Upper-stem portion.--That part of the bole of sawtimber trees above the saw log top to a minimum top diameter of 4.0 inches outside bark or to the point where the central stem breaks into limbs, whichever occurs first.

Tree Size Classes

Seedlings.--Live trees less than 1.0 inch in diameter at breast height.

Saplings.--Trees 1.0-4.9 inches in diameter at breast height.

Poletimber trees.--Trees at least 5.0 inches in d.b.h., but smaller than sawtimber size.

Sawtimber trees.--Trees exceeding poletimber size. In the Intermountain States, the minimum d.b.h. for softwood sawtimber is 9.0 inches, and 11.0 inches for hardwoods.

Volume

Net volume.--Gross volume less deductions for rot, sweep, or other defect affecting use for timber products.

Growing stock volume.--Net volume in cubic feet of live sawtimber trees and live poletimber trees from stump to a minimum 4.0-inch top (of central stem) outside bark. Net volume equals gross volume less deduction for rot and missing bole sections.

Sawtimber volume.--Net volume in board feet of sawtimber trees of commercial species. Net volume equals gross volume less deduction for rot, sweep, crook, and other defects that affect use for lumber.

Growth and Mortality

Net annual growth.--The increase in net growing stock volume of a specified size class for a specific year. (Note: Components of net annual growth include the increment in net volume of trees at the beginning of the specific year surviving to its end, plus net volume of trees reaching the size class during the year, minus the net volume of trees that died during the year, minus the net volume of trees that became rough or rotten trees during the year.)

Mortality.--Number or sound-wood volume of growing stock trees dying from natural causes during a specified period.

Site

Site class.--A classification of forest land in terms of inherent capacity to grow crops of industrial wood.

Site classifications are based upon the mean net annual growth of growing stock (not including thinnings or mortality loss) attainable at culmination of mean net annual growth over age. Height-age relationships are usually used as indicators of the specified volume-site class.

Stand-Size Classes

Sawtimber stands.--Stands at least 16.7 percent stocked with growing stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.--Stands at least 16.7 percent stocked with growing stock trees in which half or more of this stocking is in poletimber and (or) sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.--Stands at least 16.7 percent stocked with growing stock trees in which more than half of the stocking is saplings and (or) seedlings.

Nonstocked land.--Commercial timberland less than 16.7 percent stocked with growing stock trees.

Table 3.--*Total area in Central Utah by ownership class, 1976*

Ownership class	Acres	Hectares
National Forest	1,933,845	782,603
Bureau of Land Management	5,936,581	2,402,459
Indian	36,844	14,910
Miscellaneous Federal	281,601	113,960
State	905,799	366,565
County and municipal	1,030	417
Private	1,765,420	714,443
Total land area	10,861,120	4,395,357
Census water	38,528	15,592
Gross area[1]	10,899,648	4,410,949

[1]U.S. Bureau of the Census, land and water area of the United States, 1970.

Table 4.--*Land area in Central Utah by major land class and ownership class, 1976*

Land class	Ownership class			
	Public		Private	
	Acres	Hectares	Acres	Hectares
Commercial timberland	22,364	9,050	38,330	15,512
Productive reserved	--	--	--	--
Other forest land:				
Unproductive reserved	73,785	29,860	254	102
Unproductive nonreserved	857,748	347,120	299,572	121,233
Total forest land	953,897	386,030	338,156	136,847
Nonforest land	6,207,958	2,512,281	1,427,264	577,596
Total land area	7,161,855	2,898,311	1,765,420	714,443

Table 5.--*Area of commercial timberland in Central Utah by forest type, stand-size class, and site class, public owned, 1976*

Forest type and stand-size class	Site class					Total acres
	165+	120-164	85-119	50-84	20-49	
				Acres		
Douglas-fir:						
Sawtimber	--	--	--	1,838	2,964	4,802
Poletimber	--	--	--	--	427	427
Sapling and seedling	--	--	--	--	863	863
Nonstocked	--	--	--	--	--	--
Total	--	--	--	1,838	4,254	6,092
Spruce-subalpine fir:						
Sawtimber	--	--	1,482	1,219	1,725	4,426
Poletimber	--	--	--	--	636	636
Sapling and seedling	--	--	--	--	619	619
Nonstocked	--	--	--	--	--	--
Total	--	--	1,482	1,219	2,980	5,681
White fir:						
Sawtimber	--	--	--	2,999	--	2,999
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	2,999	--	2,999
Aspen:						
Sawtimber	--	--	--	2,080	849	2,929
Poletimber	--	--	--	--	2,001	2,001
Sapling and seedling	--	--	--	--	2,662	2,662
Nonstocked	--	--	--	--	--	--
Total	--	--	--	2,080	5,512	7,592
All types:						
Sawtimber	--	--	1,482	8,136	5,538	15,156
Poletimber	--	--	--	--	3,064	3,064
Sapling and seedling	--	--	--	--	4,144	4,144
Nonstocked	--	--	--	--	--	--
Total	--	--	1,482	8,136	12,746	22,364

Table 6.--*Area of commercial timberland in Central Utah by forest type, stand-size class, and site class, private owned, 1976*

Forest type and stand-size class	Site class					Total acres
	165+	120-164	85-119	50-84	20-49	
	Acres					
Douglas-fir:						
Sawtimber	--	--	--	2,632	3,098	5,730
Poletimber	--	--	--	--	1,925	1,925
Sapling and seedling	--	--	--	--	975	975
Nonstocked	--	--	--	--	--	--
Total	--	--	--	2,632	5,998	8,630
Spruce-subalpine fir:						
Sawtimber	--	--	1,549	2,058	2,825	6,432
Poletimber	--	--	--	--	533	533
Sapling and seedling	--	--	--	--	574	574
Nonstocked	--	--	--	--	--	--
Total	--	--	1,549	2,058	3,932	7,539
White fir:						
Sawtimber	--	--	--	5,613	--	5,613
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	5,613	--	5,613
Aspen:						
Sawtimber	--	--	--	7,203	2,460	9,663
Poletimber	--	--	--	--	5,164	5,164
Sapling and seedling	--	--	--	--	1,721	1,721
Nonstocked	--	--	--	--	--	--
Total	--	--	--	7,203	9,345	16,548
All types:						
Sawtimber	--	--	1,549	17,506	8,383	27,438
Poletimber	--	--	--	--	7,622	7,622
Sapling and seedling	--	--	--	--	3,270	3,270
Nonstocked	--	--	--	--	--	--
Total	--	--	1,549	17,506	19,275	38,330

Table 7.--*Area of commercial timberland in Central Utah by forest type, stand-size class, and site class, summary--public and private, 1976*

Forest type and stand-size class	Site class					Total acres
	165+	120-164	85-119	50-84	20-49	
			Acres			
Douglas-fir:						
Sawtimber	--	--	--	4,470	6,062	10,532
Poletimber	--	--	--	--	2,352	2,352
Sapling and seedling	--	--	--	--	1,838	1,838
Nonstocked	--	--	--	--	--	--
Total	--	--	--	4,470	10,252	14,722
Spruce-subalpine fir:						
Sawtimber	--	--	3,031	3,277	4,550	10,858
Poletimber	--	--	--	--	1,169	1,169
Sapling and seedling	--	--	--	--	1,193	1,193
Nonstocked	--	--	--	--	--	--
Total	--	--	3,031	3,277	6,912	13,220
White fir:						
Sawtimber	--	--	--	8,612	--	8,612
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	8,612		8,612
Aspen:						
Sawtimber	--	--	--	9,283	3,309	12,592
Poletimber	--	--	--	--	7,165	7,165
Sapling and seedling	--	--	--	--	4,383	4,383
Nonstocked	--	--	--	--	--	--
Total	--	--	--	9,283	14,857	24,140
All types:						
Sawtimber	--	--	3,031	25,642	13,921	42,594
Poletimber	--	--	--	--	10,686	10,686
Sapling and seedling	--	--	--	--	7,414	7,414
Nonstocked	--	--	--	--	--	--
Total	--	--	3,031	25,642	32,021	60,694

Table 8.--*Area of commercial timberland in Central Utah by stand volume and ownership classes, 1976*

Stand volume per acre[1]	Ownership class		
	Public	Private	Public and private
	Acres		
Less than 1,500 board feet	6,618	10,276	16,894
1,500 to 4,999 board feet	5,405	9,033	14,438
5,000 to 9,999 board feet	6,907	13,483	20,390
10,000 board feet or more	3,434	5,538	8,972
All classes	22,364	38,330	60,694

[1]International 1/4-inch rule.

Table 9.--*Area of commercial timberland in Central Utah by forest type and area condition class; public and private, 1976*

Forest type	Area condition class									Nonstocked	All classes	
	10	20	30	40	50	60	70	80	90			
	Acres											*Hectares*
Douglas-fir	--	--	1,164	--	1,838	6,302	1,193	--	4,225	--	14,722	5,958
Spruce-subalpine fir	--	--	1,193	--	6,102	3,031	565	--	2,329	--	13,220	5,350
White fir	--	--	1,194	--	2,035	4,190	1,193	--	--	--	8,612	3,485
Aspen	--	--	4,384	--	12,040	6,444	--	--	1,272	--	24,140	9,769
All types	--	--	7,935	--	22,015	19,967	2,951	--	7,826	--	60,694	24,562

Table 10.--*Area of productive reserved and other forest land in Central Utah by land class, ownership class, and forest type, 1976*

Land class	Forest type					All types	
	Douglas-fir	Limber pine	Pinyon-juniper	Aspen	Mixed hardwoods[1]		
	Acres						*Hectares*
Productive reserved area:							
Public	--	--	--	--	--	--	--
Private	--	--	--	--	--	--	--
Other forest land area:							
Unproductive nonreserved:							
Public	3,525	1,499	792,984	6,467	53,273	857,748	347,120
Private	2,697	1,508	146,882	12,918	135,567	299,572	121,233
Unproductive reserved:							
Public	--	--	72,240	--	1,545	73,785	29,860
Private	--	--	169	--	85	254	102
Total all areas:							
Public	3,525	1,499	865,224	6,467	54,818	931,533	376,980
Private	2,697	1,508	147,051	12,918	135,652	299,826	121,335
Total acres	6,222	3,007	1,012,275	19,385	190,470	1,231,359	--
Total hectares	2,518	1,217	409,655	7,845	77,080	--	498,315

[1]Usually oak, willow, or maple.

Table 11.--*Number of growing stock trees on commercial timberland in Central Utah by species and diameter class; public and private, 1976*

Species	Diameter class (inches at breast height)															All classes
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+	
	Thousand trees															
Douglas-fir	493	342	573	258	344	128	79	44	22	6	8	4	2	4	9	2,316
Limber pine	--	--	--	22	25	--	--	--	--	--	--	--	--	--	--	47
Subalpine fir	1,298	541	303	291	291	131	93	69	59	19	10	4	3	1	1	3,114
White fir	273	296	289	198	214	105	100	73	50	38	17	10	2	3	6	1,674
Engelmann spruce	458	232	102	102	98	77	67	63	31	15	16	12	5	5	6	1,289
Pinyon/juniper	71	--	117	61	24	--	--	4	--	--	3	--	--	--	1	281
Total softwoods	2,593	1,411	1,384	932	996	441	339	253	162	78	54	30	12	13	23	8,721
Aspen	1,717	2,054	3,225	1,930	845	539	179	62	27	9	3	--	--	--	--	10,590
All species	4,310	3,465	4,609	2,862	1,841	980	518	315	189	87	57	30	12	13	23	19,311

Table 12.--*Number of cull and salvable dead trees on commercial timberland in Central Utah by ownership class, and softwoods and hardwoods, 1976*

Ownership class and species group	Cull trees			Salvable dead trees
	Sound	Rotten	Total	
	Thousand trees			
Public:				
Softwoods	284	8	292	245
Hardwoods	100	66	166	124
Total	384	74	458	369
Private:				
Softwoods	540	9	549	307
Hardwoods	339	178	517	354
Total	879	187	1,066	661
Public and private:				
Softwoods	824	17	841	552
Hardwoods	439	244	683	478
Total	1,263	261	1,524	1,030

Table 13.--*Net volume of growing stock on commercial timberland in Central Utah by ownership class, forest type, and stand-size class, 1976*

Ownership class	Forest type	Stand-size class				All classes	
		Sawtimber	Poletimber	Sapling/seedling	Nonstocked		
		Thousand cubic feet					*Thousand cubic meters*
Public:							
	Douglas-fir	8,375	227	99	--	8,701	246
	Spruce-subalpine fir	11,512	665	164	--	12,341	350
	White fir	3,707	--	--	--	3,707	105
	Aspen	5,518	4,250	463	--	10,231	289
	All types	29,112	5,142	726	--	34,980	990
Private:							
	Douglas-fir	10,152	1,022	112	--	11,286	320
	Spruce-subalpine fir	17,414	558	152	--	18,124	513
	White fir	7,612	--	--	--	7,612	215
	Aspen	18,055	11,437	300	--	29,792	844
	All types	53,233	13,017	564	--	66,814	1,892
Public and private:							
	Douglas-fir	18,527	1,249	211	--	19,987	566
	Spruce-subalpine fir	28,926	1,223	316	--	30,465	863
	White fir	11,319	--	--	--	11,319	320
	Aspen	23,573	15,687	763	--	40,023	1,133
	All types	82,345	18,159	1,290	--	101,794	2,882

Table 14.--*Net volume of sawtimber on commercial timberland in Central Utah by ownership class, forest type, and stand-size class, 1976*

Ownership class	Forest type	Stand-size class				All classes
		Sawtimber	Poletimber	Sapling/seedling	Nonstocked	
		Thousand board feet[1]				
Public:						
	Douglas-fir	33,942	492	306	--	34,740
	Spruce-subalpine fir	48,081	1,694	444		50,219
	White fir	13,235	--	--	--	13,235
	Aspen	18,990	3,557	198	--	22,745
	All types	114,248	5,743	948	--	120,939
Private:						
	Douglas-fir	39,641	2,221	345	--	42,207
	Spruce-subalpine fir	71,418	1,421	411	--	73,250
	White fir	25,488	--	--	--	25,488
	Aspen	59,832	9,988	129	--	69,949
	All types	196,379	13,630	885	--	210,894
Public and private:						
	Douglas-fir	73,583	2,713	651	--	76,947
	Spruce-subalpine fir	119,499	3,115	855	--	123,469
	White fir	38,723	--	--	--	38,723
	Aspen	78,822	13,545	327	--	92,694
	All types	310,627	19,373	1,833	--	331,833

[1]International 1/4-inch rule.

Table 15.--*Net volume of growing stock on commercial timberland in Central Utah by species and diameter class; public and private, 1976*

Species	Diameter class (inches at breast height)													
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+	All classes
	Thousand cubic feet													
Douglas-fir	701	1,215	2,644	1,914	1,608	1,349	862	226	493	290	96	381	1,565	13,344
Limber pine	--	104	144	--	--	--	--	--	--	--	--	--	--	248
Subalpine fir	575	1,486	2,653	2,290	2,121	2,045	2,503	1,239	658	299	328	111	156	16,464
White fir	481	900	1,709	1,360	2,064	1,963	1,925	1,546	1,017	733	158	295	526	14,677
Engelmann spruce	139	501	973	1,190	1,594	2,171	1,603	837	1,143	1,155	468	616	1,005	13,395
Pinyon/juniper	64	95	119	--	--	34	--	--	28	--	--	--	41	381
Total softwoods	1,960	4,301	8,242	6,754	7,387	7,562	6,893	3,848	3,339	2,477	1,050	1,403	3,293	58,509
Aspen	7,481	10,942	9,416	8,677	3,843	1,545	953	312	116	--	--	--	--	43,285
All species	9,441	15,243	17,658	15,431	11,230	9,107	7,846	4,160	3,455	2,477	1,050	1,403	3,293	101,794

Table 16.--*Net volume of sawtimber on commercial timberland in Central Utah by species and diameter class; public and private, 1976*

Species	Diameter class (inches at breast height)												
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+	All classes
	Thousand board feet, International 1/4-inch rule											
Douglas-fir	8,580	8,378	7,780	7,034	4,690	1,265	2,793	1,666	552	2,211	9,175	54,124
Limber pine	486	--	--	--	--	--	--	--	--	--	--	486
Subalpine fir	11,121	11,273	10,833	10,540	12,864	6,364	3,398	1,553	1,735	598	847	71,126
White fir	6,706	5,964	9,452	8,904	8,455	6,505	4,109	2,881	618	1,156	2,088	56,838
Engelmann spruce	4,042	5,841	8,201	11,271	8,303	4,324	5,910	6,008	2,453	3,264	5,381	64,998
Pinyon/juniper	356	--	--	97	--	--	77	--	--	--	115	645
Total softwoods	31,291	31,456	36,266	37,846	34,312	18,458	16,287	12,108	5,358	7,229	17,606	248,217
Aspen	0	45,928	21,407	8,693	5,277	1,693	618	--	--	--	--	83,616
All species	31,291	77,384	57,673	46,539	39,589	20,151	16,905	12,108	5,358	7,229	17,606	331,833

Table 17.--*Net volume of growing stock and sawtimber on commercial timberland in Central Utah by ownership class and species, 1976*

Ownership class	Species								
	Douglas-fir	Limber pine	Subalpine fir	White fir	Engelmann spruce	Pinyon/ juniper	Total softwoods	Aspen	All species
	GROWING STOCK *Thousand cubic feet*								
Public	5,713	90	6,198	5,700	5,084	137	22,922	12,058	34,980
Private	7,631	158	10,266	8,977	8,311	244	35,587	31,227	66,814
Total	13,344	248	16,464	14,677	13,395	381	58,509	43,285	101,794
	GROWING STOCK *Thousand cubic meters*								
Public	162	3	175	161	144	4	649	341	990
Private	216	4	291	255	235	7	1,008	884	1,892
Total	378	7	466	416	379	11	1,657	1,225	2,882
	SAWTIMBER *Thousand board feet, International 1/4-inch rule*								
Public	23,455	138	26,462	22,370	24,403	236	97,064	23,875	120,939
Private	30,669	348	44,664	34,468	40,595	409	151,153	59,741	210,894
Total	54,124	486	71,126	56,838	64,998	645	248,217	83,616	331,833

Table 18.--*Net volume of timber on commercial timberland in Central Utah by class of timber, and softwoods and hardwoods; public and private, 1976*

Class of timber	Softwoods	Hardwoods	All classes
	Thousand cubic feet		
Sawtimber trees:			
Saw-log portion	49,458	14,604	64,062
Upper-stem portion	2,790	842	3,632
Total	52,248	15,446	67,694
Poletimber trees	6,261	27,839	34,100
All growing stock trees	58,509	43,285	101,794
Sound cull trees	996	1,379	2,375
Rotten cull trees	160	943	1,103
Salvable dead trees	6,216	1,694	7,910
All timber	65,881	47,301	113,182

Table 19.--*Net volume of growing stock on commercial timberland in Central Utah by forest type and species; public and private, 1976*

Forest type	Species								All species	
	Douglas-fir	Limber pine	Subalpine fir	White fir	Engelmann spruce	Pinyon/ juniper	Total softwoods	Aspen		
	Thousand cubic feet									*Thousand Cubic meters*
Douglas-fir	12,389	104	426	5,566	--	47	18,532	1,455	19,987	566
Spruce-subalpine fir	--	144	12,783	--	10,846	--	23,773	6,692	30,465	863
White fir	343	--	493	8,427	--	161	9,424	1,895	11,319	320
Aspen	612	--	2,762	684	2,549	173	6,780	33,243	40,023	1,133
All types	13,344	248	16,464	14,677	13,395	381	58,509	43,285	101,794	--
	Thousand cubic meters									
All types	378	7	466	416	379	11	1,657	1,225	--	2,882

Table 20.--*Net volume of sawtimber on commercial timberland in Central Utah by forest type and species; public and private, 1976*

Forest type	Species								All species
	Douglas-fir	Limber Pine	Subalpine fir	White fir	Engelmann spruce	Pinyon/ juniper	Total softwoods	Aspen	
	Thousand board feet, International 1/4-inch rule								
Douglas-fir	51,818	--	2,080	21,172	--	77	75,147	1,800	76,947
Spruce-subalpine fir	--	486	54,597	--	52,126	--	107,209	16,260	123,469
White fir	1,547	--	2,221	32,747	--	287	36,802	1,921	38,723
Aspen	759	--	12,228	2,919	12,872	281	29,059	63,635	92,694
All types	54,124	486	71,126	56,838	64,998	645	248,217	83,616	331,833

Table 21.--*Net annual growth of growing stock and sawtimber on commercial timberland in Central Utah by ownership class and species, 1976*

Ownership class	Species							All species
	Douglas-fir	Limber pine	Subalpine fir	White fir	Engelmann spruce	Total softwoods	Aspen	
	GROWING STOCK							
	Cubic feet							
Public	58,858	2,184	44,422	113,911	112,553	331,928	415,960	747,888
Private	137,082	2,891	64,460	194,557	164,134	563,124	1,170,435	1,733,559
Total	195,940	5,075	108,882	308,468	276,687	895,052	1,586,395	2,481,447
	GROWING STOCK							
	Cubic meters							
Public	1,666	62	1,258	3,226	3,187	9,399	11,779	21,178
Private	3,882	82	1,825	5,509	4,648	15,946	33,143	49,089
Total	5,548	144	3,083	8,735	7,835	25,345	44,922	70,267
	SAWTIMBER							
	Board feet, International 1/4-inch rule							
Public	319,722	1,782	648,378	642,357	531,868	2,144,107	1,173,938	3,318,045
Private	612,355	4,468	1,142,952	1,081,942	804,080	3,645,797	2,832,965	6,478,762
Total	932,077	6,250	1,791,330	1,724,299	1,335,948	5,789,904	4,006,903	9,796,807

Table 22.--*Annual mortality of growing stock and sawtimber on commercial timberland in Central Utah by ownership class, and softwoods and hardwoods, 1976*

Species group and ownership class	Growing stock		Sawtimber
	- Cubic feet -	*- Cubic meters -*	*- Board feet*[1] *-*
Softwoods:			
Public	200,223	5,670	687,302
Private	260,163	7,367	1,062,588
Total	460,386	13,037	1,749,890
Hardwoods:			
Public	13,304	377	31,885
Private	38,717	1,096	75,506
Total	52,021	1,473	107,391

[1]International 1/4-inch rule.

Table 23.--*Annual mortality of growing stock and sawtimber on commercial timberland in Central Utah by cause of death and species; public and private, 1976*

Cause of death	Species					All species
	Douglas fir	Subalpine fir	White fir	Total softwoods	Aspen	
	GROWING STOCK *Cubic feet*					
Insects	115,558	--	--	115,558	--	115,558
Disease	--	--	--	--	32,596	32,596
Fire	--	--	--	--	--	--
Animal	--	--	--	--	--	--
Weather	--	--	--	--	19,425	19,425
Suppression	--	--	--	--	--	--
Unknown	--	325,538	19,290	344,828	--	344,828
Logging	--	--	--	--	--	--
Total	115,558	325,538	19,290	460,386	52,021	512,407
	GROWING STOCK *Cubic meters*					
Insects	3,273	--	--	3,273	--	3,273
Disease	--	--	--	--	923	923
Fire	--	--	--	--	--	--
Animal	--	--	--	--	--	--
Weather	--	--	--	--	550	550
Suppression	--	--	--	--	--	--
Unknown	--	9,218	546	9,764	--	9,764
Logging	--	--	--	--	--	--
Total	3,273	9,218	546	13,037	1,473	14,510
	SAWTIMBER *Board feet, International 1/4-inch rule*					
Insects	258,492	--	--	258,492	--	258,492
Disease	--	--	--	--	--	--
Fire	--	--	--	--	--	--
Animal	--	--	--	--	--	--
Weather	--	--	--	--	107,391	107,391
Suppression	--	--	--	--	--	--
Unknown	--	1,491,398	--	1,491,398	--	1,491,398
Logging	--	--	--	--	--	--
Total	258,492	1,491,398	--	1,749,890	107,391	1,857,281

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Shupe, Dorothy G. and Barrett, Michael K.
1979. Forest area and timber resource statistics for the Central Utah Working Circle, 1976. USDA Forest Serv. Resour. Bull. INT-14, 23 p. Intermt. For. and Range Exp. Stn., Ogden, Utah 84401.

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